

# Description

## PICTURE HANGING SYSTEM

### FIELD OF THE INVENTION

[0001] The present invention relates to display devices, and more particularly, to a modular system for hanging and displaying pictures such as photographs, paintings, posters and the like.

### BACKGROUND OF THE INVENTION

[0002] Pictures, including paintings, posters, photographs and the like, are typically framed for hanging on a wall or other vertical surface. Conventional systems for hanging pictures generally include picture frames wherein cables or wires are affixed to the rear of a frame, either along the sides of the frame or along the top of the frame and the frame hung from a wall. The cable and wire members typically suspend the frame from a hook affixed to the wall and the hook is typically hidden from view by the picture frame. Other methods of hanging pictures are also known and can include clips or brackets affixed to the rear of the

frame for suspending the frame on a hook, nails or other fasteners that are affixed to the wall.

[0003] While conventional picture hanging systems are satisfactory for their intended purposes, e.g., they are capable of hanging pictures on a wall, each picture is typically hung independently of the others, which requires a separate hanging device for each picture. Consequently, in order to hang a plurality of pictures on a wall, considerable damage to the wall from hooks and/or nails is incurred. Additionally, alignment of the various pictures with one another can be troublesome. Applicant has previously addressed these types of problems in U.S. Patent No. 6,119,999, which was filed on June 26, 1998 and granted to Applicant on September 19, 2000, which patent is incorporated herein by reference in its entirety. While the device illustrated in U.S. Patent No. 6,119,999 solves many of the problems typically associated with hanging pictures, the device described therein does not provide means for preventing unnecessary damage to a wall caused by the picture frame and hardware or prevent damage to the picture.

[0004] What is needed then is an aesthetically pleasing modular picture hanging system wherein a plurality of pictures may

be easily hung from a supporting structure such that unnecessary damage to the supporting structure and the work is avoided.

## **SUMMARY OF THE INVENTION**

[0005] The present invention broadly comprises a modular picture hanging system operatively arranged to suspend one or more pictures from a supporting structure, preferably a vertically oriented surface such as a wall or window, such that the suspended picture does not come into contact with the surface of the supporting structure.

[0006] In a preferred embodiment a picture is contained within a picture frame and the picture frame is suspended from a supporting structure by a pair of wall hook mounting means, a rod means, a pair of ring means, a pair of wire means, and an pair of attachment means. The wall hook mounting means is configured to offset the rod means from a wall such that the picture suspended therefrom is prevented from contacting the wall, thus, minimizing damage. The rod means is provided for securing the ring means, which are generally configured for translational and rotational movement upon the rod means. It should be appreciated by those having skill in the art, however, that the ring means could be operatively arranged such

that its motion may be arrested, e.g. by means of a locking screw, bolt or the like. The ring means is operatively arranged to secure an upper loop of the wire means. A lower loop of the wire means at the opposite end is secured to the picture frame by the attachment means and the lower loop may rotate with respect to the attachment means for adjustment purposes. The wire means preferably comprises a monofilament wire, but could comprise other types of wire such as cable, rope or chain. Additionally, while the present invention may be configured for suspending pictures such as photographs, paintings, posters or other works, a preferred embodiment suspends a picture from a picture frame comprising two panes of glass that secure to one another via the attachment means. It should be appreciated that the present invention could also be configured for suspending items other than pictures or picture frames, for example, works of art and the like.

[0007] The picture hanging system of the invention is, thus, aesthetically appealing, easy to adjust, and minimizes the damage that may occur to both the supporting structure and the work. Moreover, because the picture hanging system of the present invention is adjustable, the sizes,

heights and arrangement of a group of pictures can be changed using the supporting hardware, which obviates the need to make additional holes in a wall to accommodate changes. It should be appreciated that the picture hanging system of the present invention may also be configured for hanging one or more pictures from a surface such that the work may be viewed from both sides.

[0008] A general object of the invention, thus, is to provide a means for suspending one or more works from a supporting structure such as a wall or a window, such that damage to the works and the supporting structure is avoided.

[0009] Another object of the invention is to provide a common means for suspending a plurality of works, such as pictures, from a supporting structure such that excessive damage to the picture or picture frame is avoided.

[0010] A further object of the invention is to provide an aesthetically appealing modular system for suspending a plurality of pictures from a wall such that the pictures can be readily arranged and rearranged without causing unnecessary damage to the supporting structure.

[0011] These and other objects, features, and advantages of the present invention will become readily apparent to those having ordinary skill in the art upon reading the following

detailed description of the invention in view of the several drawings of the invention.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

- [0012] The nature and mode of operation of the present invention will now be more fully described in the following detailed description of the invention taken with the accompanying drawing figures, in which:
- [0013] Figure 1 is a perspective view of a picture hanging system according to the present invention;
- [0014] Figure 2 is sectional view of a picture hanging system of the present invention taken generally along line 2-2 of Figure 1;
- [0015] Figure 3 is a partial, close up cutaway view of the present invention proximate the attachment means;
- [0016] Figure 4 is a sectional view of the present invention taken generally along line 4-4 of Figure 1;
- [0017] Figure 5 is sectional view of the present invention taken generally along line 5-5 of Figure 4;
- [0018] Figure 6 is a partial exploded perspective view of a picture hanging system according to the present invention;
- [0019] Figure 7 is a perspective view of an embodiment of the present invention wherein the pictures and picture frames are oriented horizontally with respect to one another;

[0020] Figure 8 is a perspective view of an embodiment of the present invention wherein the pictures and picture frames are vertically adjacent one another to form a "picture in picture";

[0021] Figure 9 is a perspective view of an embodiment of the invention wherein the pictures and picture frames are vertically adjacent one another to form a "picture from picture"; and,

[0022] Figure 10 is a perspective view of an embodiment of the invention wherein the pictures and picture frames are both horizontally and vertically adjacent one another.

#### **DETAILED DESCRIPTION OF THE INVENTION**

[0023] At the outset, it should be appreciated that like drawing numbers on different drawing views identify identical structural elements of the invention. While the present invention is described with respect to what is presently considered to be the preferred embodiments, it should be understood that the invention is not limited to such embodiments.

[0024] In the detailed description that follows, it should also be appreciated that the phrase "vertically adjacent" is intended to encompass embodiments of the present invention wherein a picture, picture frame, or work is located

substantially above or below another. Similarly, the phrase "horizontally adjacent" is intended to encompass embodiments of the present invention wherein a picture, picture frame, or work is located substantially horizontal with respect to another. For example, Figure 10 illustrates an embodiment of the present invention comprising a plurality of frames that are both horizontally and vertically adjacent one another. The terms "picture" and "work" as used herein may be used interchangeably to describe a photograph, painting, poster or other work of art, or may be used to refer to a picture or work in combination with a picture frame; for example, Figure 1 illustrates "pictures" 11, 13a and 15, each comprising picture frame 29 and work 28. The terms "wall" and "wall structure" as they may be used herein may refer to a wall, ceiling or like surface from which the present invention may be suspended.

[0025] It should also be appreciated at the outset that while we disclose a rod means having a circular cross section and rings comprising complementarily shaped bores for slideable and rotational fit thereon, other shapes of rods and rings are intended to be encompassed by the present disclosure; for example, rods and rings may be arcuately sided, linearly sided, etc. Similarly, while the present



specification and drawings illustrate square and rectangular pictures and picture frames, other art works and other shapes of pictures and picture frames, e.g. arcuately sided, linearly sided, etc., are contemplated and intended to be encompassed by the present specification and claims.

[0026] While a preferred embodiment of the present invention is constructed primarily from metals and glass, other suitable materials such as wood, plastics, plexiglass, or ceramics may be substituted where appropriate to achieve similar results.

[0027] Structure of a Preferred Embodiment

[0028] Adverting now to the figures, Figures 1–6 show the general structures of a preferred embodiment of the modular picture hanging system 10 of the present invention. As more clearly illustrated in Figures 1 and 6, which show combination pictures/picture frames 11, 13a and 15 as horizontally adjacent one another, the picture hanging system of the present invention generally comprises hook mounting means 12, rod means 14, ring means 18, wire means 20, work 28, picture frame 29, and attachment means 32.

[0029] As shown in Figures 1, 2, and 6, hook mounting means 12

is operatively arranged to secure the picture hanging system to wall 17 or other supporting structure, such as a window or appliance, via rod means 14 such that a picture or work suspended therefrom does not contact the supporting structure surface. Hook mounting means comprises three primary portions including anchoring portion 45, offsetting portion 43 and rod means supporting portion 41. The rod means supporting portion generally comprises a hook for accepting the cylindrically shaped rod means. Of course, because other shapes of rod means 14 are contemplated, the rod means supporting portion may vary accordingly. Where the picture hanging system of the present invention is to be suspended from wall 17, the anchoring portion of the hook mounting means generally comprises a threaded portion for mating with ribbed anchor sleeve 23. Where hook mounting means 12 is to be secured to an appliance surface, window or other flat surface, the hook mounting means may comprise a hook portion in combination with a suction cup or adhesive of a type known in the art. The offsetting portion of the hook mounting means generally comprises that area between the rod means supporting portion and the anchoring portion and is of sufficient length to prevent a picture or pic-

ture frame from contacting wall 17 when the picture hanging system is mounted thereto.

[0030] Rods means 14 is supported by the hook mounting means and is operatively arranged to secure ring means 18, which has a complementary shaped ring bore 19 (See Figure 4). While Figures 1–10 show the rod means and the ring means as being cylindrically shaped, it should be appreciated that other shapes of the rod and ring means are contemplated and are intended to be encompassed by the present claims; for example, the rod means could be arcuately shaped or polygonal if desired. The rod means and the ring means are operatively arranged such that the ring means may traverse the rod means in either direction for adjustment. End caps 16 are provided for threadable mating with the threaded ends of the rods means such that the ring means are prevented from sliding off.

[0031] As shown more clearly in Figure 2–5, ring means 18 are generally provided for securing wire means 20. As indicated, *supra*, ring means 18 comprise ring bore 19 for slideable and rotational fit with the rod means. The shape of ring bore 19 typically corresponds to the shape of the rod means, but could be configured to comprise any shape, if desired. Ring means 18 further comprises wire

bore 21 for securing wire means 20 via upper loop 22.

[0032] Wire means 20 are provided for suspending a picture or work from the wire bore. In a preferred embodiment, a pair of wire means of the same length are operatively arranged to suspend a work from the rod means, such that the picture/picture frame maintains level. Preferably, the wire means comprises a monofilament wire, but could comprise cable, chain, rope, or string. Upper loop 22 of wire means 20 is secured to the wire bore by threading a free end of the wire means therethrough and then securing the free end to an intermediate portion of the wire means using sheath fastener 26. The sheath fastener may then be crimped to form crimped portion 27 (See Figure 5) and form a loop. Lower loop 24 of the wire is provided for securing picture frame 29 and is similar to the upper loop. However, instead of passing the free end of the wire through wire bore 21, the free end is simply folded upon an intermediate portion of the wire means and secured thereto with a sheath fastener. Preferably, the wire means are cut to length and the upper and lower loops fabricated at the point of manufacture in order to ensure that each wire means of each pair are of the same length.

[0033] In a preferred embodiment, the present invention is oper-

atively arranged to support a picture or work by means of picture frame 29. As shown in Figures 3 and 6, the picture frame generally comprises an outer translucent/translucent pane 30 and an inner translucent/ transparent pane 31. The inner and outer translucent/transparent panes are preferably of glass and secured to one another via a plurality of threadably mating attachment means 32. It should be appreciated that while a preferred embodiment comprises a picture frame comprising a pair of translucent/transparent panes, other types of picture frame may be substituted.

[0034] Attachment means 32 generally comprise threaded outer nut 33, inner threaded bolt 34, nut sleeve 35, and O-ring 36, which secure the inner and outer translucent/translucent panes to one another via a plurality of bores 37 such that picture 28 may be secured therebetween. The inner and outer panes are preferably constructed from glass and the nut sleeves and O-rings are preferably constructed from plastic or rubber such that damage to the glass is prevented. As shown in Figure 6, lower loop 24 is operatively arranged to accept the threaded portion of inner nut 34 such that the picture frame may be suspended by the wire means. In a preferred embodiment, lower loop

24 is secured to the attachment means such that the lower loop may rotate with respect to the attachment means so that a picture frame could be adjusted. However, lower loop could be fixedly secured via the attachment means to prevent rotation. Also, in a preferred embodiment comprising a square or rectangular shaped picture frame, four (4) attachment means 32 are generally used to secure the outer and inner panes to one another.

[0035] It should be appreciated by those having ordinary skill in the art that while a preferred embodiment comprises at least one picture frame suspended from a rod via a pair of ring means 18, a pair of wire means 20, and at least two attachment means 32, the present invention may be configured such that each picture comprises any number of ring means, wire means or attachment means. Moreover, the picture hanging system of the present invention may be configured to comprise any number of pictures arranged and sized in virtually any manner. For example, Figure 1 illustrates a picture hanging system of the present invention as comprising three (3) small picture/picture frames 11, 13a and 15 horizontally adjacent one another. Also, in the embodiment of Figure 1 it is seen that picture/picture frames 11 and 15 comprise a portrait

orientation whereas picture/picture frame 13a is comprises a landscape orientation.

[0036] Figure 7, which shows embodiment 38, illustrates that various sized pictures/picture frames may be hung by the hanging system of the present invention; in this figure picture/picture frame 13b is much larger than picture/picture frames 11 and 15. Figure 8, which shows embodiment 40, illustrates a "picture in picture" configuration. This embodiment comprises picture/picture frame 42 suspended by wires 20b having a distance therebetween. Suspended above picture/picture frame 42 and interior of wires 20b is picture/picture frame 44, which is suspended from the rod means via wires 20a, which are also shorter than wires 20b.

[0037] Figure 9, which shows embodiment 50, illustrates a "picture from picture" embodiment of the present invention. In this example, it is seen that picture/picture frame 52 is vertically adjacent picture/picture frame 54. Picture/picture frame 52 is suspended from the rod means by means of wires 20c and picture/picture frame 54 is suspended from wires 20d, which secure to the lower attachment means of picture/picture frame 52.

[0038] Finally, Figure 10, which shows embodiment 60, illus-

trates that the pictures/picture frames of the hanging system of the present invention may be vertically and horizontally adjacent one another. In this example, pictures/picture frames 62 and 64 are suspended from wires 20f and 20e, respectively, and are vertically adjacent one another, and picture/picture frame 66, which is suspended from wires 20g, is horizontally adjacent pictures/picture frames 62 and 64.

[0039] Operation of a Preferred Embodiment

[0040] It should be appreciated that the following steps discussed herein do not comprise the sole means and methods for using the invention. Preferably, prior to mounting the picture hanging system, pictures or works are first secured between the translucent/transparent panes. This is accomplished by loosening the attachment means such that the translucent/transparent panes may be separated. Once the panes are separated, the pictures or works may be inserted therebetween, the panes placed back together and the attachment means tightened to frictionally secure the works therebetween.

[0041] The ring means (having the wire means and pictures secured thereto) may then be secured to the rod means by removing one of the end caps from the rod means such



that the ring means may be slid thereon. Once the ring means are slid upon the rod means, the end cap is reattached.

[0042] Where one desires to mount the picture hanging system to a wall, the hook mounting means is secured to the wall. One method of securing the hook mounting means includes drilling a hole in the wall and inserting the ribbed anchor sleeve therein. The threaded portion of the hook mounting means is then inserted into the ribbed anchor sleeve to cause expansion thereof. The expansion of the ribbed anchor sleeve secures the hook mounting means to the wall. The hook mounting means may then be rotated until the rod means supporting portion is configured for securing the rod means. As indicated, *supra*, the hook mounting means may be adapted to comprise elements such as suction cups or adhesives for mounting the picture hanging system from other types of surfaces such as a window, an appliance or other flat surface. With the hook mounting means secured to the desired surface, the rod means (having the ring means, wire means, and picture frames secured thereto) may then be hung upon the rod means supporting portion and the picture frames slid along the rod means to a desired location.

[0043] Thus, it is seen that the objects of the present invention are efficiently obtained, although modifications and changes to the invention should be readily apparent to those having ordinary skill in the art, which modifications are intended to be within the spirit and scope of the invention as claimed.

[0044] **Parts List**

[0045] **10 Supporting Structure**

[0046] **11 Picture/Picture Frame**

[0047] **12 Hook Mounting Means**

[0048] **13a Picture/Picture Frame**

[0049] **13b Picture/Picture Frame**

[0050] **14 Rod Means**

[0051] **15 Picture/Picture Frame**

[0052] **16 Threaded End Cap**

[0053] **17 Wall**

[0054] **18 Ring Means**

[0055] **19 Ring Bore**

[0056] **20 Wire Means**

- [0057] 20a Wire
- [0058] 20b Wire
- [0059] 20c Wire
- [0060] 20d Wire
- [0061] 20e Wire
- [0062] 20f Wire
- [0063] 20g Wire
- [0064] 21 Wire Bore
- [0065] 22 Upper Loop
- [0066] 23 Ribbed Anchor Sleeve
- [0067] 24 Lower Loop
- [0068] 26 Sheath Fastener
- [0069] 27 Crimped Portion
- [0070] 28 Picture
- [0071] 29 Picture Frame
- [0072] 30 Outer Pane
- [0073] 31 Inner Pane

- [0074] 32 Attachment Means
- [0075] 33 Outer Nut
- [0076] 34 Inner Bolt
- [0077] 35 Nut Sleeve
- [0078] 36 O-ring
- [0079] 37 Bore
- [0080] 38 Alternative Embodiment
- [0081] 40 Alternative Embodiment
- [0082] 41 Rod Means Supporting Portion
- [0083] 42 Picture/Picture Frame
- [0084] 43 Offsetting Portion
- [0085] 44 Picture/Picture Frame
- [0086] 45 Anchoring Portion
- [0087] 50 Alternative Embodiment
- [0088] 52 Picture/Picture Frame
- [0089] 54 Picture/Picture Frame
- [0090] 60 Alternative Embodiment

[0091] 62 Picture/Picture Frame

[0092] 64 Picture/Picture Frame

[0093] 66 Picture/Picture Frame